



REPROCESS OF DREDGED SEDIMENTED PARTICLES FROM COASTAL AREAS AS PARTIAL REPLACEMENT WITH RIVER SAND IN CONCRETE – A REVIEW

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ABSTRACT

This paper present literature review on replacement of dredged particles as partial replacement with river sand in concrete. Dredged sedimented particles are dumped as waste material. Concrete is a major construction material used in the construction industry. River sand is used as fine aggregate in concrete and due to increase in the utilization of concrete in construction industry, the need for the river sand has been increased. The suitable alternate material may be required to meet the scarcity of river sand. Dredged sedimented sea sand is found to be suitable alternate for river sand as partial in concrete industry. This paper discusses the behavior of concrete by partial replacement of fine aggregate with dredged sedimented sea sand.

Key words: Concrete, Dredged sedimented sea sand, River sand, Compressive strength.

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1. INTRODUCTION

The rapid growth of the construction sector and the demand of the river sand to the concrete industry is being increased nowadays. Due to the scarcity of river sand, the suitable alternate material for river sand is therefore required essentially. Dredged sedimented sea sand is found to be a suitable alternate material for river sand as partial in concrete industries nowadays.

It is therefore necessary to examine the possibility of using dredged sea sand in concrete industry as suitable alternate for river sand. The dredged sediments are dumped into offshore and in lands as waste material only. Instead of throwing them as waste, if we use them as

effective alternate material for river sand in concrete production then it is believed to be very useful material and it is also identified to be suitable remedy for the scarce of river sand.

Frame civil engineers in their study on beneficial use of marine dredged sand and sediments in road constructions. The results obtained in this study in using the process of reusing marine dredged sand and sediments can be used successfully as a new material for road construction.

Dredged sands obtained from sea have been used in UK over a long period. Currently, in the UK, about 20 percent of natural gravel and sand dredged with submersible pumps making it possible to win the material from depth up to 50 m. In China, where coastal areas are rich in sea sands are already in wide use in local concrete construction due to convenience in mining and transportation, mature technology, lower costs; the cost of sea sand is only 50-70 percent of imported fresh water sand.

2. LITERATURE REVIEW

The Authors Salmabanu hugar, Urvashikhandelural On their International Journal Paper on “A Study on durability of dredged marine sand concrete” conducted various tests and duration attempted in their investigation, which allows the successful use of dredged marine sand in concrete construction activities.

The authors B. Naga Niranjan Kumar, P. Kiran kumar, E. Ramesh Babu, M. Gopal, D. Sreekanth Reddy, K. Sreekanth and V. Yellappa in their journal paper on “An Experimental Study on sea sand by Partial Replacement of sea sand in concrete “ describes about the compressive and flexural strength. The observed by replacing 40% of sea sand the compressive strength increased by 13.4% and the flexural strength has increased by 6.46%.

The Authors DAR Dolage, MGS Dias and CT Ariya wansa in their Journal Paper on “Off shore sand as a Fine Aggregate for concrete Production” revealed that off shore sand obtained from 2-7 km away from the western coast, soon after dredging, can be used as an alternative to river sand, which is considered the most viable of all alternatives in terms of availability, ease of extraction, environmental impact and cost.

The authors CG Girish, Tensing D and Priya H L of school of civil Engg, Karunya University, Coimbatore, India in their study on the extent of using off shore sand as a partial replacement for fine aggregate in concrete. The compressive strength of concrete made with 30% graded sand was found to be nearer to the strength of concrete made with the river sand. The flexural strength of concrete made with 30% off shore sand was found to be nearer to the strength of concrete made with river sand.

3. SUMMARY

Based on above discussion following can be summarized:

The dradged marine sand can be used in concrete production as a replacement with river sand.

The replacement of 40% of sea sand in concrete production leads to increase of 13.4% compressive strength and 6.46% of flexural strength of the concrete.

Dragged marine sand can be used as an alternative to river sand, which is considered the most liable of all alternatives in terms of availability, cae of extraction , environmental impact and cost.

The flextural strength of concrete made with 30% of shore sand was found to be nearer to the strength of concrete made with the river sand.

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